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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/799,951

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John W. Haim

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EXAMINER

FOTAKIS, ARISTOCRATIS

ART UNIT

PAPER NUMBER

2611

MAIL DATE

DELIVERY MODE

09/20/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/799,951

Applicant(s)

HAIM ET AL.

Examiner

Aristocratis Fotakis

Art Unit

2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07/25/2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 - 11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 - 11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments filed July 25, 2007 with respect to claims 1 - 2 and 3 - 8 have been fully considered but they are not persuasive. Arguments with respect to claims 9 - 11 have been considered but are moot in view of the new ground(s) of rejection.

Applicant has amended claim 1 to add the limitation of "providing a correction factor corresponding to a saturation value". As discussed below regarding rejection of claim 1, Schumtz teaches of determining a gain adjustment factor to control the signal strength more accurately, resulting in a longer battery life and a reduction of perpetual attenuation from the increasing of signal strength.

Applicant has amended claim 3 to add the limitation of "using said number to perform a comparison and generating a response in response to said comparison". As discussed below in rejection of claim 3, when the signal strength exceeds the first threshold, the signal would be attenuated as shown in Fig.4 where a loop is shown. The signal strength would be re-measured and be compared for the second time to the threshold comparison of #154).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 3 - 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Schmutz et al (US Pub 2001/0048727).

Re claim 1, Schmutz teaches of a method for determining, in a timeslot, the initial setting of a gain control loop (Fig.3); the gain control loop being included in a receiver of a communication system (Fig.3) which utilizes repeating frames each frame having a plurality of timeslots (Paragraph 0029, Page 3, Lines 1 – 4 to Page 4, Lines 1 - 2); the method comprising: storing (#130, RAM, Fig.3) the setting of the gain control loop for a particular timeslot (Paragraph 0030, Lines 1 – 4); retrieving said stored setting in the corresponding timeslot of a subsequent frame (Paragraph 0030, Lines 20 – 25); providing a correction factor (gain adjustment factor) corresponding to a saturation value (Paragraphs 0030 - 0032, Fig.4); and adjusting said setting by a correction factor to provide said initial setting (*gain adjustment factor*, Paragraph 0031, Lines 24 – 28).

Re claim 3, Schmutz teaches of a method for determining the setting of a gain control loop; the gain control loop being included in a receiver of a communication system (Fig.3) which utilizes repeating frames, each frame having a plurality of timeslots (Paragraph 0029, Page 3, Lines 1 – 4 to Page 4, Lines 1 - 2); the method comprising: receiving a segment of data, the segment of data comprising a plurality of samples (step 152, Paragraph 0029, Page 4, Lines 2 – 4 and sampling rate, Paragraph 0027, Line 7, herein a timeslot includes a plurality of samples); determining, from said plurality of samples, the number of said samples which exceed a first threshold (block 154, Fig.4, Paragraph 0029, Page 4, Lines 9 – 13); setting the gain of the gain control loop for a particular timeslot based, at least in part, upon said number (Paragraph 0029, Page 4, Lines 17 – 22); and using said number to perform a comparison and generating a response in response to said comparison (Fig.4, #154, when the signal strength exceeds the threshold, the signal would be attenuated, Fig.4 shows the loop where the signal strength would be measured and be compared for the second time to threshold comparison of #154).

Re claims 4 and 5, Schmutz teaches of the segment of data including a first portion (data in a timeslot) whereby samples in a sampling period (sampling rate) are examined and a second portion (guard period in a burst) whereby samples are not examined in a skip period (burst) (Paragraphs 0024 – 0026).

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Re claim 6, Schmutz teaches of adjusting said gain by a power correction factor (Paragraph 0031, Page 4, Col 2, Lines 22 – 28). In order to adjust the gain averaging is performed (addition and division of a total of numbers) to determine a factor to correct the power. (*power control requests*, Paragraph 0021).

Re claim 7, Schmutz teaches of the power correction factor depending, at least in part, upon said number (Paragraph 0030, Lines 6 – 11).

Re claim 8, schumtz teaches of a power correction factor as discussed above in claim 6. For storing the measured amplitudes and the gain adjustment factors it would be inherent to have needed a lookup table.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schumtz in view of Yang (US Pub 2003/0139160).

Schumtz teaches all the limitations of claim 1 except of setting the correction factor.

Yang teaches of an automatic gain control circuit with a very wide operational range, less hardware, and faster response, and more flexibility includes a signal strength estimator, a gain adjusting factor device and a multiplier. After the signal

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strength estimator finds signal strength, the gain adjusting factor device will generate a gain adjusting factor corresponding to the signal strength. Then the multiplier will update gain by multiplying it the gain adjusting factor (Abstract). Yang teaches of an adjusting factor $\beta = R^\alpha$ where R is the reference signal and α is the adjusting coefficient (Paragraphs 0014 – 0017).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used factor $\beta = R^\alpha$ to design an AGC circuit with a preferred relation between signal strength and gain adjusting factor with wide operational range, fast response time and less hardware.

Claims 9 – 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schumtz in view of Mutojo et al. (US 20040151264).

Re claims 9 - 10, Schumtz teaches of an automatic gain control (AGC) circuit (Fig.3), comprising: an AGC loop, configured to receive a segment of data comprising a plurality of samples (see claim 3); the AGC loop configured to determine a gain setting and to output said segment of data (see claim 3); a saturation detection circuit, configured to determine the number of samples of said segment of data which exceed a first threshold in responsive to said output from the AGC loop (see claim 3 and Page 5, Col 2, claim 14). However, Schumtz does not teach of an erase circuit.

Montejo teaches of a receiver operating to AGC a multi-carrier signal through a corresponding number of inner loops and an outer loop AGC processes (Abstract). Montejo teaches of threshold comparison where there are a couple of options to be used. The first option is to set a maximum front-end Attenuation level so that a minimum number of bits are allocated to represent the signal/noise input at the ADC input. The second option is not setting any constraint on the maximum front-end attenuation. By not setting any constraint on the maximum front-end attenuation, the signal of interest may be removed from the ADC produced signal. Effectively, the first option preserves a minimum number of bits allocated to the signal of interest at the expense of not closing the loop to the Active State set point and hence allowing some additional saturation. If the unwanted signal power is so large that severely saturates the ADC for the maximum attenuation allowed, the recovery of the signal of interest may become also impossible. However, if the attenuation is not too severe, the signal may be recoverable (Paragraph 0031).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used an erase circuit to compare the number with a second threshold so as to decide whether the data segment can be recovered or removed due to severe saturation.

Re claim 11, Schumtz teaches of saturation detection circuit further comprising a look-up table, for receiving said number and outputting a corresponding power

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correction factor (see claim 8); and wherein said AGC loop adjusts said gain setting responsive, at least in part, to said power correction factor (see claim 7).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aristocratis Fotakis whose telephone number is (571) 270-1206. The examiner can normally be reached on Monday - Thursday 7 - 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh M. Fan can be reached on (571) 272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AF



CHIEH M. FAN
SUPERVISORY PATENT EXAMINER